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PINK DISEASE.

By F. T. Brooks.

There has been a considerable development of Pink Disease in Malayan rubber estates during the last 18 months and at the present time it is the disease which requires the greatest amount of attention in many districts. Fortunately Para rubber is one of the healthiest crops in existence even when this increase of Pink Disease is taken into consideration, and though there is occasion for particular vigilance in connection with this disease there is no ground for alarm if proper precautions are taken. Pink Disease is now notifiable (see the F. M. S. Government *Gazette* No. 3679, p. 1996, Vol. V, No. 59 of December 19, 1913).

This disease is caused by a fungus which is known scientifically as *Corticium salmonicolor* or *Corticium javanicum*. In Java where the fungus attacks various kinds of cultivated plants it is known by the Malayan name of "Djamoer Oepas."

The disease has been investigated in Java by Rant with special reference to its effect on cinchona. The officers of the mycological section of the Department of Agriculture at Kuala Lumpur have been conducting investigations into the life history and development of the fungus on rubber trees but as it will be some time before the bulletin describing the results in detail can appear, it has been thought desirable to publish this preliminary account which will deal chiefly with the means of identifying the fungus in the field and of the remedial measures which should be adopted in dealing with it.

Pink Disease has been recorded on Para rubber in Java, Borneo, Sumatra, Ceylon, Burmah, and Southern India as well as in Malaya. The disease has been reported on a great variety of other hosts amongst which are coffee, tea, and cinchona, as well as indigenous plants from which the fungus proceeded in all probability to

cultivated products introduced into these countries. The chief centres of distribution in the Federated Malay States are Southern Perak, the district around Pondok Tanjong, and Negri Sembilan. During the present year the disease has been found also in rubber estate in the northern part of Selangor. The disease develops most rapidly during periods of heavy rainfall.

Pink Disease attacks rubber trees of various ages though it is only rarely seen on trees under 2 years of age. It often begins its attack in a fork of the tree on account of the accumulation of water there, but sometimes it affects a branch in the middle. In a few cases the disease has been seen to attack the main stem. The manifestation of Pink Disease on a rubber tree is extremely variable. The disease is so called because the fungus often causes a pink incrustation on the branches or main stem, which is more especially developed on the under or shady side. In this condition the disease is very striking and cannot be mistaken. One planter speaking in a graphic manner says that a tree affected by this form of Pink Disease looks as if it has been partly covered with carbolic tooth powder. This incrustation often cracks irregularly and the bright pink colour rapidly fades to a dingy white. There are however at least three other forms in which the fungus appears on the rubber tree. Pink Disease frequently assumes the form of white or pale pink pustules arranged more or less in lines. At other times the part of the fungus apparent on the exterior consists of fine white or pale pink strands which run irregularly downwards over the surface. These strands are sometimes so delicate that they are easily overlooked. Finally there is the *Necator* stage which was formerly looked upon as a separate fungus but is now known to be a stage in the life history of Pink Disease. The fungus in this condition consists of orange red (not pink) pustules about $\frac{1}{8}$ inch in length. Each pustule consists of a mass of spores which serve to propagate the disease. It often happens that two or more of these stages are present together, but it is important to remember that Pink Disease is by no means always pink to look at.

The spores of the fungus germinate on healthy bark especially where there is an accumulation of moisture and the mycelium which develops is entirely superficial at first. After a time it begins to penetrate the bark and when the mycelium has reached the laticiferous tissues, exudation of latex frequently begins which runs down the bark and becomes darkened as time goes on. The weeping of latex from branches is one of the surest signs of the presence of Pink Disease. On looking up into rubber trees this exudation can often be seen when it is impossible from ground level to denote any other indication of the disease. The mycelium

rapidly spreads both upwards and downwards over and through the bark causing it to rot. The fungus sometimes advances into the wood; this happens more frequently in small branches than in large ones. If the mycelium spreads in the wood the leaves of the affected branches wilt and turn brown on account of the water supply being cut off. When larger branches are attacked, the progress of the fungus in the bark may be checked by a spell of dry weather and in this case an open canker-like wound is caused, on the margins of which a callus tends to repair the injury. Sometimes the disease is entirely thrown off in this manner but one occasionally sees Pink Disease developing again over the newly formed bark which began to close the wound. Where the cankered areas have entirely thrown off the disease the region around them is frequently blackened on account of the oxidation of the rubber exuded when the disease was active.

In regard to the treatment for this disease it must be pointed out in the first place that spraying with fungicides apart from exceptional cases is impracticable and to some extent also useless. Spraying a rubber plantation with trees 30—50 ft. high is an entirely different proposition from spraying an orchard containing trees only 20 ft. or so high. There would have to be something in the nature of a revolution in spraying methods to enable a mature rubber plantation to be sprayed effectively so as to check Pink Disease. Again in view of the regularity of the rainfall in the Federated Malay States a single spraying would be useless. If spraying were to be effective at all in a climate like this it would have to be repeated at frequent intervals for it must be remembered that spraying with a fungicide is a preventative rather than a cure. Once Pink Disease has entered the bark the internal mycelium cannot be killed by spraying the exterior. It is only in the case of trees under three years of age that spraying with Bordeaux Mixture or Lime-Sulphur might be effective in this connection in the F. M. S. but on all such plantations yet seen, the writer would have advised the measures detailed below rather than spraying. Spraying would have to be undertaken as a preventive measure if there was danger that the disease would break out in epidemic form in young plantations in this country but fortunately there is yet no indication of this. In Southern India where there is a prolonged dry season spraying young trees before the coming of the monsoon has been found to check the disease.

When Pink Disease first appears in a rubber plantation it is usually distributed in a sporadic manner, *i.e.* one tree is affected here and another one there. It is of the utmost importance that the disease should be dealt with vigorously from the outset by cutting

off and burning the affected parts. In most plantations where Pink Disease appears for the first time only a few trees usually are attacked. In such cases diseased branches should be cut off at least two feet below the lowest point where there are obvious signs of the fungus and it is preferable to cut them off flush with the main stem or larger branch. In no case should "hat-pegs" be left. Unfortunately it seems difficult to induce coolies to use saws, so care should be taken to see that they cut underneath the branch before there is danger of it being severed from above, otherwise an ugly snag may be left. If the main stem of a tree is affected below the level of the lowest branches it should be cut out and burnt.

Where a large number of trees are affected on an estate the manager may think twice before he cuts out in this drastic manner. If he decides not to cut in this way, branches and main stems which appear to have a chance of recovery should be covered with tar for two feet above and below the region over which the fungus is evident. If the disease is dealt with in this way in the early stages many branches may be saved. Even when the fungus has penetrated the bark to a slight extent the external application of tar appears to check its progress. It has been urged that the diseased bark should be removed before tar is applied. That is an excellent ideal but as the coolies carry out this work imperfectly and frequently handle the affected bark so that they may be the means of disseminating the disease it is preferable to apply tar direct to the affected parts. Treated trees should be examined within a month and if the fungus has spread it must be decided whether tarring is to be tried again or whether the affected parts are to be cut out. On one estate where there was a good deal of Pink Disease the manager checked its progress by giving two applications of tar when necessary at intervals of a month. If two applications were found useless the affected parts were then cut out and burnt. In certain cases, *e.g.* when the leaves of a branch have wilted because the fungus has entered the wood, it is obviously hopeless to apply tar. The only thing to do in such cases is to cut out and burn the diseased portions. If tar is applied to check Pink Disease it is essential that the work should be done under good supervision, otherwise the money will be wasted.

Planters sometimes have difficulty in burning diseased branches on account of persistent rain. If it is impossible to burn the diseased parts directly they should be drenched with a 10% solution of Sulphate of Copper, removed from the plantation and buried in the ground some distance away from the rubber trees. It must always be remembered however that there is nothing so good as fire for the destruction of fungoid pests. In this connection mention

should be made of the fact that another pink fungus (*Oospora gilva*) which is harmless, usually develops on wood in this country a few days after it has been burnt. This fungus has been more than once mistaken for Pink Disease.

Where Pink Disease has appeared in an estate a pest gang should be formed if it is not already established and the size of the pest gang should be such that it can go over the whole estate once every three or four weeks. Pink Disease develops rapidly and any longer interval is too great to allow of it being dealt with effectively. The expense of maintaining a pest gang is considerable but this must be met. The whole of the rubber plantation industry is dependent upon the health of the trees so it would be suicidal policy to grudge money for treating disease. Fortunately directors, agents, and managers are alive to this fact.

It sometimes happens that native holders in the neighbourhood of European estates do not clear up pests and diseases on their properties as do the managers of the latter. Such neglect in the case of Pink Disease is doubly serious and it is to be hoped that the Agricultural Pests Enactment will compel offenders to do their duty.

Any plants besides rubber which are found to be affected by Pink Disease in the neighbourhood of estates should be destroyed. The disease has been seen in this country on Cocoa, Coffee, Gardenia, Hibiscus, Horse Mango, Camphor, "Langsat," Lime, Durian, Jak, and a species of Senna. Ridley reported it some years ago on Ramie and *Strobilanthes*. There is one doubtful record of it occurring on a jungle tree. Planters and others would be doing a service if they would be good enough to report the occurence of Pink Disease on any other hosts besides rubber. The manifestations of the disease on other plants are the same as those on rubber.

If the measures indicated above are carried out the disease should be kept under control but any neglect of it will be dearly purchased. As a disease of rubber trees it is more common in this country than the "die-back" caused by *Diplodia* and it is undoubtedly a disease which will have to be watched most carefully. *Diplodia* often enters wounds caused by Pink Disease and increases the injury.

THE LONDON RUBBER EXHIBITION.

It was decided towards the end of 1913 that Malaya should be represented by exhibits at the International Rubber and Allied Trades Exhibition to be held in June 1914.

The F. M. S. Government agreed to subscribe a sum of £1000 provided the Planters' Association of Malay gave its support by obtaining contributions from estates to an equal amount.

As in the case of the last Exhibition in New York, it was decided to remit the export duty in the case of all exhibits sent from estates to represent to collective exhibit from the Federated Malay States.

The Planters' Association of Malaya decided to support the exhibition and arrangements were left in the hands of the Director of Agriculture.

It was decided that all exhibits except those sent by estates for competition purposes should be sent through the Department of Agriculture. Estates were circularised by the Director of Agriculture with the result that samples were received from 83 estates including, 36 in Selangor, 24 in Perak, 12 in Negri Sembilan, 2 in Pahang, 3 in Province Wellesley, 3 in Malacca and 3 in Johore. This does not include several estates whose exhibits were received too late and were returned. A number of estates appear to have sent their exhibit direct through their own London Agents.

The cases were opened at the Department of Agriculture and inspected by the Director of Agriculture and the Agricultural Chemist.

About six cases were rejected for various reason. Most of the samples were of good appearance, but the smoked sheet—with one or two exceptions—was rather mixed in character.

It would appear more difficult to prepare a product of standard *appearance* with smoked sheet than in the case of pale crepe. A number of samples had suffered from bad packing.

All the rubber was unpacked and repacked under the supervision of Mr. Lambourne, Superintendent of Government Plantations, and shipped per S. S. consigned to the Malay States Information Agency London. Each case was numbered, and inside each was placed a label giving the name and head office address of the Company, the local address of the Estate and the grade and weight of the rubber.

The total amount of rubber forwarded, apart from special samples prepared by the Agricultural Chemist, was 28,166½ lbs. The following is a list of the contributing estates tabulated under different grades:—

Name of Estate.	Smoked Sheet.	No. I Crepe.	Lower Grade Crepes.
1 Batu Caves	130 lbs.	107 lbs. Blanket.	105 lbs. Scrap Crepe
2 Bukit Jelutong	166		
3 Bungsar	100		
4 Highlands	1,000	161	161 lbs. each of Nos. 2, 3 and 4.

Name of Estate.	Smoked Sheet.	No. I Crepe.	Lower Grade Crepes.
5 Jugra Lands	100	100	100 lbs. each of No. 3, best scrap and earth scrap.
6 Seafield	120	105	100 lbs. each of bark scrap and best scrap.
7 Jugra	103		100 lb. and 102 lb. of best scrap and bark scrap.
8 Glenmarie	100	100	
9 Serendah		100	100 Best scrap crepe.
10 Balgownie		153	153 Earth bark scrap (No. 6), 145 Bark scrap (No. 4), 151 Earth scrap (No. 5), 144 Scrap crepe, 140 Lump crepe.
11 Inch Kenneth		126	148 lbs. Lump scrap (No. 2).
12 Kajang		121	140 Lump crepe.
13 Glenshiel		142	152 Lump crepe.
14 Dominion		130	Earth Scrap crepe 146, 143½ Lump crepe, 138 Scrap crepe, 136½ No. 2 Lump crepe, 142½ Bark scrap crepe.
15 Kent	100	100	100 Lump crepe, 100 Bark crepe, 100 Earth crepe.
16 Ledbury	400		
17 Kepong	380		
18 Changkat Asa		114	
19 St. Andrews	100		
20 West Country		126	140 Bark scrap, 140 Bark shavings.
21 Sungei Puloh	190		140 Bark crepe, 140 Scrap crepe.
22 Pilmoor	100		
23 Bute	125		
24 Jalan Acob	100	100	
25 Puchong		350	
26 Bukit Rajah	100	100	100 Scrap crepe.
27 Seaport		125	
28 Kuala Selangor	209	151	
29 Lapan Utan	120		
30 Sungei Tua	100		
31 Shelford	100		100 Best scrap crepe.
32 Harpenden		120	120 Scrap crepe.

Name of Estate.	Smoked Sheet.	No. I Crepe.	Lower Grade Crepes.
33 North Hummock			100 Scrap crepe.
34 Braunston		115	115 Best scrap crepe.
35 Dusun Durian		200	
36 Jebong		134	
37 Krian Rubber Plantations	390		207 Bark shavings crepe, 299 Scrap, 118 Lump crepe.
38 Goodheart	105		
39 Cicely		157	Scrap 119.
40 Trong		145	
41 Ratanui		130	
42 Klabang	191		102 lb. Tree scrap crepe 103 Earth ,, 100 Bark ,, 109 Lump and Cup washing crepe.
43 Castleton		818	
44 Kota Bharu	337		Bark crepe 105lb. Scrap 233lb.
45 Hendra	100		
46 Kota Tampan	121		
47 Changkat Salak	100		
48 Straits Rubber Co	112	112 (smoked)	Lump crepe 112 lb. bark scrap 113.
49 Gula	120	120	Bark scrap 240 lb.
50 Canning	146		
51 Kamuning	100	100	No. 2 Crepe 100 lb.
52 Klian Kellas	116		
53 Gapis	147		Bark screpe 164, scrap crepe 166.
54 Sengat	100	100	
55 Batak Rabit		142	Bark scrap 162.
56 Bernam	100		
57 Ayer Kuning	107	109	Bark crepe 127, scrap crepe 122.
58 Tali Ayer		100	Best scrap crepe 100.
59 Sungei Krian	140		
60 Senawang	100		No. 2 Crepe (shavings) 100lb., earth scrap crepe 100lb.
61 Leigh			Scrap crepe 360lb.

Name of Estate.	Smoked Sheet.	No. I Crepe.	Lower Grade Crepes.
62 Siliau	150	110	
		110 (Artificially)	Tree scrap 110lb., bark scrap 110lb.
63 Ulu Rantau	200		
64 Sagga		130	Lump crepe 125lb., cup washing crepe 110lb.
65 Gan Kee	300		
66 St. Leonards	200	200	
	200		
		(Smoked crepe)	Washed crepe (No. 2) 192½.
67 Sendayan		150	No. 2 crepe 100.
68 Cheviot		125	Virgin crepe 125.
69 Labu		125	Bark crepe 125.
70 Linggi (Rantau Div.)		350	
71 Sikanaty	160		
72 Semambu	300 (hand made)		
73 Gali	336		
74 Alma	100		
75 Bukit Toh Alang	100		
76 Caledonia		130	No. 2 crepe 140lb.
		133 Thick crepe.	
77 Bukit Kajang	758	465	
		258 Blanket	
78 Cheng	700		
79 Malaka Pinda	140		
80 Mount Austin	300	145	
81 Jementah	320		Scrap crepe 120lb., Tree scrap crepe 120lb.

Nos. 1-35 are estates in Selangor, 36-59 in Perak, 60-71 in Negri Sembilan, 72 and 73 in Pahang, 74-76 in Province Wellesley, 77-79 in Malacca and 80-81 in Johore.

The following grades not included in the above were also sent:—

Bujong Estate (Selangor)
No. 1 Block 105½ lbs. No. 2 Block 102 lbs. No. 3 Block 102 lbs.
Lanadron (Johore) Block 100 lbs.

Bukit Kajang Special Worm 589 lbs.

Total smoked sheet, 10,639 lbs. No. 1 crepe, 7,523 lbs. Lower grade crepe, 8,694 lbs. Block rubber, 409½ lbs. Special worm, 589 lbs. Smoked crepe, 312 lbs.

The only sample of unsmoked sheet was rejected on account of tackiness.

SPECIMENS PREPARED AND COLLECTED BY THE AGRICULTURAL DEPARTMENT.

Para Rubber.

Smoked and unsmoked biscuits; crepe from latex untreated and also treated with sodium bisulphite, unsmoked sheet prepared from latex with and without addition of sodium bisulphite, smoked sheet ditto., rubber coagulated on the Derry machine, rubber prepared in sheet by coagulating latex in shallow trays, specimen of latex preserved by addition of formalin, samples of freshly coagulated lump and sheet before and after machining, and samples of crepe with and without sodium bisulphite, freshly machined, bark shavings, naturally coagulated lump, freshly machined bark shavings and scrap crepe. All of these samples were sent in formalin solutions.

Camphor.

Specimens of crude and sublimed camphor; also camphor pressed into cakes, and camphor oil, prepared at the Experimental Plantation from Cinnamonum Camphora (Japanese Camphor tree).

Para Rubber Seed Products.

Sample of oil pressed from crushed seed in a screw press, and sample of the residual cake, rubber seed kernels.

Lallang Fibre.

Specimen of "half-stuff" prepared by C. ffolliot Pears Esq. of Tampin Linggi Estate.

Coconuts, Coconut Oils and Other Oil Products.

Coconut oil and Gingelly oil and specimens of cake, Coconuts unhusked (10 kinds) Coconuts husked (10 kinds), and one cati of copra.

Fibres.

Agave species, Agave Rigida var, Sansiviera Zeylanica, Furcraea, coconut spinning fibre, coir matting, coir mattress fibre, and coir yarn.

Gutta Percha, and Other Rubbers.

Taban merah (block), Taban puteh (block) Taban merah (ball), Getah Rambong (ball), Getah gerit (lump).

Drugs, Spices, Dyes, Etc.

Dragons blood (cake). Dragon's blood (ball). Fruits of dragon's blood extracted and untreated. Ipecacuanha root, White and black pepper, Cloves, Turmeric, Star Anise, Ginger, Cinnamon bark and leaves, Cardamoms, Anise seed, Poppy seed, Nutmegs, Mace, Coriander, Tamarind, Palmyra sugar, Chillies, Gula Kelapa, Gula Malacca, Indigo seeds (I. arrecta). Coconut sugar, Kapok, Pickles (5 kinds).

Botanical Specimens.

Rubber seed, rubber seed for germination; rubber seeds showing different stages of germination, Indigofera sumatrana, Indigofera arrecta, Cinnamonum camphora, Pachouli, Coffee robusta, Coffee liberica, Lemon grass, Citronella grass, rubber seedlings at different ages, rubber stumps, young coconut and rubber plants.

Photographs.

A large series of photographs illustrating nearly every phase of a rubber plantation, many views of other cultivations and illustrating life and conditions in Malaya were sent for enlargement. A number of stereoscopic views was also sent.

Maps.

Maps of Selangor, Perak, Negri Sembilan and Pahang, also the same with the positions of exhibiting estates marked with numbers.

Rotans.

Specimens of rotan—Manau, getah, ayer, batu, jernang, kerai, tanah, udang, sega, sega ayer, semambu, ribu, manur.

Rubber Tapping Exhibits.

Rubber trees (3 trunks), latex cups, tapping knives.

Models.

Model of Castleton Estate factory, coolie lines at Castleton Estate, Manager's bungalow and Smoke house, Pondok Tanjong Government Estate are being constructed in England for the exhibition.

MALAY BASKET WORK, ETC.

Specimens of Malay hats and baskets, and the materials from which these are made (Pandan leaves) from Port Dickson, Malacca etc.

TRENGGANU EXHIBITS.

A fine collection of silk and other sarongs made in Trengganu also a large collection of white metal ware obtained through the British Adviser.

L. LEWTON-BRAIN.

LOCUST SPRAYING EXPERIMENTS.

H. C. PRATT.

The following experiments were conducted in Negri Sembilan during the latter part of 1913. The poisons used were:—

London Purple, Paris Green, Arsenite of soda. For the experiments the Four Oaks Knapsack Sprayers were used. The first four experiments are not recorded, as the Mandor, through a misunderstanding, removed the sheeting which enclosed these sprayed areas.

In order to discover the most effective proportions, as well as the cheapest, small gatherings of locusts were enclosed within sheeting in the field. Subsequently experiments were tried under field conditions. See Nos: 5, 18, 19, 20, and 21.

EXPERIMENT No. 5.

A field experiment no enclosures, Arsenite of Soda 1 lb: dissolved by boiling in one gallon of water to which was added two gallons of water for use.

An open area of about 1600 square yards on the side of a hill was sprayed with this solution.

The ground was covered with thick grass and there were blukar and lalang present. Driving would have been attended with great difficulty.

Spraying was done in front of the swarm *i.e.* ahead of the direction in which they were moving between the hours of 9 a.m. and 1 p.m. Heavy rain occurred at 3 p.m.

Result:—70% dead at 5 p.m. the same day.

EXPERIMENT No. 6.

London Purple 1 lb., water 25 gallons, mixed with cold water. An enclosure of 12 square yards was sprayed with this mixture at 8.15. a.m. At the time of spraying the locusts

were in thick coarse grass over ground in which it would not have been feasible to drive them. There was a strong sun and but little rain fell during the day.

Result:—95% were alive in this enclosed area at 5.10 p.m. the same day while at 8. a.m. the next morning 50% were dead.

Experiment No. 7.

London Purple 1lb. water 25 gallons mixed with cold water, and to which were added 3 lbs. of Molasses. The locusts were enclosed in an area of 12 square yards, and spraying was conducted at 10.45. a.m. in hot sun. There was not a great deal of grass, and most of it was short. Only a little rain fell after the area had been sprayed.

Result:—95% were alive at 5.15. p.m. the same day and 60-70% were dead at 10. a.m. on the next day.

Experiment No. 8.

London Purple 1lb., water 50 gallons mixed with cold water, and to this were added 6 lbs. of Molasses. The locusts were enclosed in an area of 12 square yards and spraying was conducted at 11.15. a.m. in the hot sun. They were in short sparse grass and there was but little rain after spraying.

Result:—95% were alive at 5. p.m. on the same day and about 70% dead at 10. a.m. the next day.

Experiment No. 9.

London Purple 1 lb., water 12 gallons mixed with cold water and to which were added 4½ lbs. of Molasses. The locusts were enclosed in an area of 12 square yards over which there was a fair amount of short grass. Spraying was conducted at 11.45. a.m. in the hot sun. There was not much rain after spraying.

Result:—About 70% were dead at 5.10. p.m. on the same day and on the next day 100% at 10. a.m.

Experiment No. 10.

London Purple 1 ~~gallon~~ lb., water 6 gallons, mixed with cold water to which were added 4½ lbs. of Molasses. The locusts were enclosed in an area of 12 square yards and over this there was a fair amount of short grass. Spraying was conducted at 10.15. a.m. in the hot sun. There was but little rain after spraying.

Result:—About 75% dead at 5.20. p.m. on the same day and about 98% dead the next morning at 10. a.m.

EXPERIMENT No. 11.

Arsenite of Soda 1lb. dissolved by boiling in 1 gallon of water, which was diluted for use with 1 gallon of water. The locusts were enclosed in an area of 12 square yards which was sparsely covered with short grass. Spraying was conducted at 10.30. a.m. in hot sun. Only a little rain fell after spraying.

Result:—About 90% dead at 5.30. p.m. the same day. All dead at 8. a.m. the next day.

EXPERIMENT No. 12.

Arsenite of Soda 1 lb. dissolved by boiling in 1 gallon of water which was diluted for use with 8 gallons of water. To this were added 3 lbs. of Molasses. The locusts were enclosed in an area of 12 square yards which was sparsely covered with short grass. The solution was sprayed within the enclosure at 11.20. a.m. in hot sun. Only a little rain fell after spraying.

Result:—About 70% were dead at 5 p.m. the same day, and 98% dead at 11 a.m. the next morning.

EXPERIMENT No 13.

Arsenite of Soda 1 lb. dissolved by boiling in 1 gallon of water which was diluted for use with four gallons of water. To this were added 3 lbs. of Molasses. The locusts were enclosed in an area of 12 square yards which was sparsely covered with short grass. The solution was sprayed within the enclosure at 11.25. a.m. in the hot sun. Only a little rain fell after spraying.

Result:—Practically 100% dead at 5.10. p.m.

EXPERIMENT No. 14.

Arsenite of Soda 1 lb. dissolved by boiling in 1 gallon of water which was diluted for use with two gallons of water. To this were added 3 lbs. of Molasses. The locusts were enclosed in an area of 12 square yards which was sparsely covered with grass. The solution was sprayed within the enclosure at 11.40. a.m. in the hot sun. Very little rain fell after spraying.

Result:—Practically 100% dead at 5. p.m.

EXPERIMENT No. 15.

Paris Green ½lb. water 3 gallons mixed with cold water to which were added 2 lbs. of Molasses. The enclosed area was sprayed at 11. a.m. on a dull day. There was a little rain at 11.30. a.m. The enclosed area was well covered with grass.

Result:—90% alive at 5.20. p.m. the same day and 90% dead at 9 a.m. the next day.

EXPERIMENTS 16 & 17.

Two experiments with Paris Green at the same rate as experiment 15 and with the same amount of Molasses. Two areas of 12 square yards were enclosed and sprayed at 11 a.m. in the hot sun. There was plenty of suitable grass within the enclosures. Hoppers of 5th instar. At 3.30 p.m. a very heavy rain commenced and it continued to rain heavily for 3 hours.

Results:—At 8.30. a.m. about 70% of the enclosed locusts were alive. Some were developing wings which would account for their not feeding.

EXPERIMENT No. 18.

Arsenite of Soda 1 lb. dissolved by boiling in 1 gallon of water to which were added 2 gallons of water for use. An open area on the side of a hill, about 1 acre in extent was sprayed with this solution between the hours of 9 and 11 in the morning in the hot sun. There were blukar, thick grass, shrubs and lallang, a place where driving would have been attended with considerable difficulties. There was heavy rain at 3. p.m. at 3. p.m.

Result:—In the evening at 5. p.m. it was apparent that about 70% of the swarm were dead. Next morning there were very few live hoppers.

EXPERIMENT No. 19.

Arsenite of Soda 1 lb. dissolved in 1 gallon of water diluted with 4 gallons of water for use. To this were added 1½ lbs. of Molasses. The locusts covered about 4 acres but were not in dense masses over this area. It was however a fairly large swarm. Surrounding the locusts were lalang and blukar while the ground over which they were scattered had very little grass. For this experiment, two Four Oaks sprayers were used; a belt of grass 5 or 6 yards wide was first sprayed round the swarm. The inner area was then sprayed. Spraying was conducted between the hours of 8. a.m. and 11. a.m. in hot sun. There was very heavy rain at 3. p.m.

Result:—At 1 p.m. same day many dead. At 5 p.m. the same day practically all the swarm dead.

EXPERIMENT No. 20.

Arsenite of Soda 1 lb. dissolved by boiling in 1 gallon of water diluted with 4 gallons of water for use. To this were added 2 lbs. of Molasses. High lalang on the railway bank was

sprayed with this solution the lalang at the time being full of 4th instar locusts.

Result:—Next morning no sign of living locusts. A few dead ones were found on the ground but owing to the thick lalang and the fact that the locusts had probably scattered it was difficult to find many dead. The swarm was a large one.

EXPERIMENT No. 21.

Paris green 1 in 6, Molasses 2 lb. sprayed over lalang and grass which was swarming with locusts.

Result:—Only a few dead ones found the next day.

EXPERIMENT No. 22.

Bran, Arsenite of Soda, and Molasses tried in form of baits, and spread about the field amongst a swarm of hoppers.

Result:—Negative.

The above experiments show very definitely the most effective poison of those which have been tried. They may thus be summarised.

London Purple including Experiments 6, 7, 8, 9, 10.

It will be seen from these that the proportions were respectively 1 in 25 without Molasses, 1 in 25 with Molasses, 1 in 50 with Molasses, 1 in 12 with Molasses, and 1 in 6 with Molasses. From the results obtained it is apparent that the mixtures of 1 in 12 and 1 in 6 were the only ones likely to prove of any value in the field.

Paris Green, including Experiments 15, 16, 17.

The proportion of Paris Green in these three experiments was 1 in 6 with Molasses. Experiment No. 15 shows an interesting result. It must however be borne in mind that the locusts, being enclosed had no option but to eat the poisoned grass. It is slow in its effect.

Arsenite of Soda including Experiments 5, 11, 12, 13, 14, 18, 19, and 20.

The proportions were respectively as follows:—

The stock solution represents 1 lb. Arsenite of Soda in one gallon water.

1 gallon stock solution 2 gallons water without Molasses.
1 gallon stock solution 1 gallon water without Molasses.
1 gallon stock solution 8 gallons water with Molasses.
1 gallon stock solution 4 gallons water with Molasses.
1 gallon stock solution 2 gallons water with Molasses.
1 gallon stock solution 2 gallons water without Molasses.
1 gallon stock solution 4 gallons water with Molasses.
1 gallon stock solution 4 gallons water without Molasses.

It will be noticed that the cheapest and most effective solution is 1 in 4 with the addition of Molasses, *i.e.* Experiment 13, 19, 20. which include two field experiments.

The cost per gallon of these poisons in this country would be approximately as follows:—

Paris Green	1 in 6	6 cents per gall.
London Purple	1 in 6	3-4 cents per gall.
Arsenite of Soda	1 in 4	3 cents per gall.

Thus the Arsenite of Soda besides being the most effective is the cheapest.

With efficient nozzles one knapsack sprayer containing 4 gallons of this solution should cover about 400 square yards so that it would require 12 sprayers full to the acre, and one coolie under normal conditions should be able to spray this in one day. The time required and amount of solution used will naturally depend upon the nature of the growth to be sprayed, lalang and blukar would need at least twice the amount of poison, and take longer to spray. It should not, however, for the poison itself, cost more than $2.00 per acre of sprayed ground of this class and the average not more than $1.60.

Spraying is undoubtedly effective but care must be taken in using a strong solution of Arsenite of Soda. Spraying areas within Kampongs, if adopted, will be attended with danger. The locusts could certainly be surrounded before the grass is sprayed but some caution must be taken with regard to the dead bodies. In a Kampong the fowls would devour these. It might be feasible to make the Malays changkol over the ground and bury the dead locusts before or immediately after the sheeting has been removed. They would, however, have to be buried fairly deep.

I do not recommend poisoning in a kampong where driving is easy.

Spraying should be started in the early morning and a ring of grass, lalang or whatever the locusts are feeding on poisoned round the swarm or in front of the direction in which they are treavlling.

There can be no definite rule for dealing with swarms. The field conditions must decide this point.

All the nozzles should be of uniform size. That producing a very fine mist is the most effective and economical. I found the Four Oaks Sprayers satisfactory.

There are two drawbacks to the use of Arsenite of Soda. 1. It makes the tips of the fingers under the nails very sore. It is not possible to avoid the hands getting wet. This might be overcome by the use of cheap water proof gloves. 2. Arsenite of Soda cannot be sprayed on foliage that must not be killed.

It has however great advantages. First it is very effective, and secondly the fact that the grasses die very rapidly after the solution is sprayed upon them acts as a preventive to cattle grazing over the poisoned area, nor is the grass of any use for fodder.

An important consideration was the difficulty attending the boiling in the field. Small quantities could be mixed but to obtain large quantities entailed much waste of time.

If the Arsenite of Soda is well ground up there is no necessity to boil the water in order to dissolve the Arsenic. It is quite soluble in cold water. The easiest way to mix the solution on the field, would be by taking 1 lb. to 5 gallons of cold water, stirring well for 10 minutes and then spray with this solution. It is essential to grind the Arsenite of Soda into a powder.

RUBBER YIELDS FROM DIFFERENT PERIODS OF TAPPING.

By F. G. Spring.

The object of this experiment is to compare the yields of rubber obtained from every day tapping with that of alternate month, alternate week, and tapping one day in seven. The systems conducted in the various plots are described underneath.

PLOT 1.

Every Day Tapping.

System—Single Quarter (Half Herring Bone).
Two cuts 18 inches apart. No. of trees 100.

Average girth of the trees, measured 3 feet from the ground, at the commencement of the experiment 21·75 ins.

PLOT 2.

Alternate Month Tapping.

System—Single Quarter (Half Herring Bone).
Two cuts 18 inches apart. No. of trees 100.

Average girth of the trees, measured 3 feet from the ground, at the commencement of the experiment 21·42 ins.

PLOT 3.

Alternate Week Tapping.

System—Single Quarter (Half Herring Bone).
Two cuts 18 inches apart. No. of trees 100.

Average girth of the trees, measured 3 feet from the ground, at the commencement of the experiment 21·85 ins.

PLOT 4.

One Day in Seven Tapping.

System—Double V, cuts 18 inches apart. No. of trees 100.

Average girth of the trees, measured 3 feet from the ground, at the commencement of the experiment 21·91.

The plots are adjacent to each other, and the trees under similar conditions, the slope, drainage, and nature of the soil being practically the same. The growth of the trees is most uniform, the average girth, in each plot, being over 21 inches and under 22, a variation of ·49 of an inch from the lowest to the highest girth. Fortunately no trees were destroyed during the period of tapping referred to in the tables.

It should be noted that in plots 1, 2, and 3 (every day, alternate month and alternate week tapping) the system adopted is two cuts on the Single Quarter, but in plot 4 (tapping one day in seven) a Double V is used.

In plots 1, 2, and 3, which are strictly comparable, reference to the tables will show that every day tapping yields approximately three times as much rubber as that of alternate month, the former giving 178 lbs. 8 ozs. total rubber, and the latter 61 lbs. 6½ozs. total rubber.

With every day tapping slightly less than double the amount of bark has been removed as compared with alternate month consequently every day tapping yields considerably more rubber per area of bark removed.

An interesting feature in connection with alternate month tapping is that the daily yields of rubber at the commencement of each tapping month are small, but gradually increase towards the close of the month. The small yields obtained for a number of days on each occasion after the trees were rested for a month may be due to the bark having dried up to a certain extent or the irregular tapping, in all probability a combination of the two.

With alternate week tapping the yield of total rubber is about half that of every day, to a certain extent in proportion to the area of bark removed; at the commencement of each tapping week the yields are smaller than that at the end of the week but there is not such a large variation as with alternate month.

Tapping one day in seven, for the first ten months, gives very poor yields as compared with every day tapping, and by no means in proportion to the area of bark removed, but during the 9th and 10th month there is a very distinct increase but even if this increase were to continue to such an extent as to give comparatively goods results in later years, I am afraid that the extremely small yields likely to be obtained for the first year or so would render it

unsatisfactory. A planter cannot very well afford to adopt a system which will probably give 12 to 16 lbs. of rubber per 100 four years old trees for the first year, while with other systems 200 lbs. is not uncommon.

Reference to the tables will show that February of 1913 was a dry month, and with the exception of one day a week tapping it is noticeable that the yields of latex rubber are lower than that of the previous months, this reduction is most noticeable in alternate month and alternate week tapping.

Time of Tapping.	PLOT 1. Every Day Tapping.				PLOT 2. Alternate Month Tapping.				PLOT 3. Alternate Week Tapping.			
	Latex Rubber		Scrap.		Latex Rubber.		Scrap.		Latex Rubber.		Latex Rubber.	
	lbs.	ozs.	lbs.	ozs.	lbs.	ozs.	lbs.	ozs.	lbs.	ozs.	lbs.	ozs.
15 Oct. to 14 Nov. 1912	11	2	1	13½	12	9½	1	14	10	5	1	6
15 Nov. to 14 Dec. ,,	17	0	1	13					11	4½	1	5½
15 Dec. to 14 Jan. 1913	13	3	2	3½	11	8½	3	4½	9	3½	1	4½
15 Jan. to 14 Feb. ,,	10	12½	2	7					7	14	1	9½
15 Feb. to 14 March ,,	9	14	2	4½	5	10½	3	1½	5	0	1	14½
15 March to 14 April ,,	12	6	3	0					4	8	1	6
15 April to 14 May ,,	10	4½	2	7	5	4½	2	14	3	2½	1	9
15 May to 14 June ,,	19	1½	2	10					3	12	1	15½
15 June to 14 July ,,	21	2	2	4	12	4	2	15	9	3	1	9
15 July to 14 Aug. ,,	29	3	2	13					7	3	1	6
Total	154	12½	23	11½	47	5	14	1½	71	7½	15	5½

PLOT 4.

Tapping One Day in Seven.

Time of Tapping.	Latex Rubber. lbs.	ozs.	Scrap. lbs.	ozs	Rainfall.		
15 Oct. to 14 Nov. 1912		5½		1½	Oct. 1912,		
15 Nov. to 14 Dec. ,,		4½		1½	Nov. 1912,	14·26	inches.
15 Dec. to 14 Jan. 1913		8½		2½	Dec. 1912,	11·95	,,
15 Jan. to 14 Feb. ,,		7		2	Jan. 1913,	10·46	,,
15 Feb. to 14 March ,,		10		2½	Feb. ,,	3·72	,,
15 March to 14 April ,,		15½		3	Mar. ,,	11·69	,,
15 April to 14 May ,,		7½		2½	Apr. ,,	11·02	,,
15 May to 14 June ,,		12½		3	May ,,	8·10	,,
15 June to 14 July ,,	1	9		4	June ,,	3·77	,,
15 July to 14 Aug. ,,	2	9½		3	July ,,	2·63	,,
Total	8	9½	1	9			

	Plot 1	Plot 2	Plot 3	Plot 4
	lbs. ozs.	lbs. ozs.	lbs. ozs.	lbs. ozs.
Latex Rubber ...	154 12½	47 5	71 7½	8 9½
Scrap Rubber ...	23 11½	14 1½	15 5½	1 9
Total ...	178 8	61 6½	86 13	10 2½

The yield of rubber from bark shavings is not given.

THE AVOCADO OR ALLIGATOR PEAR.

By J. Lambourne.

This fruit is produced on *Persea gratissima*, Gaertn, a medium sized tree belonging to the order Laurineae. This order contains a number of genera natives chiefly of the warmer countries of both hemispheres; the order is almost wholly unrepresented in the Temperate Zone. The genus *Persea* contains about 100 species, natives of tropical America and the Old World. Although so many species are known *P. gratissima* which is a native of S. America seems to be the only one which bears edible fruits worthy of note. The timbers of several species are valuable on account of their durability.

The tree on which the Avocado,—or Alligator Pear, is borne, is of medium size, attaining, in countries where it thrives, to the height of from 25 to 30 feet. The bark is comparatively smooth, and gray on the trunk, and older parts of the branches; and smooth and green towards the tips. The branches are stout and, as a rule, are produced nearly to the base of the trunk. The leaves are alternate, broadly lanceolate, acute, narrowing towards the base to a short leaf stalk. They are about 8 inches to one foot in length, about three to four inches wide, coreaceous and shining above, paler and dull below, and quite glabrous. The flowers are greenish in colour and disposed in panicles which are borne in the axils of the leaves near the tips of the young branches. The perianth tube is short and the limb segments 6 in number are almost equal, or the three outer ones smaller. The Stamens are nine in number and perfect. The ovary is downy ripening into a large pear-shaped green drupe containing one large seed.

The fruit in outward appearance bears the strongest resemblance to a very large green pear. The fleshy part of the fruit surrounding the seed,—which is about the size of a walnut,—is greenish yellow in colour, and of the consistency of firm butter. It has a fine flavour of fresh walnuts which when eaten raw with pepper and salt or lime juice is very delicious.

The Avocado Pear is now cultivated in most warm countries but does not receive the attention it deserves. In Southern California and Mexico the fruit is common in the markets as it is also in the W. Indies. The tree grows and fruits well in Southern India, Ceylon and also in parts of the Straits and F. M. S. but it is not so widely cultivated as it might be. This fruit, if more extensively cultivated in this country, would form a welcome addition to our present somewhat scanty collection of salads.

The Avocado Pear is easily propagated from seed or cuttings of half ripe wood. After being planted to permanent quarters, the plants appears to require very little attention beyond being kept clean from weeds and an occasional mulching of manure, when grown on very poor soil.

A few trees about 6-7 years of age fruited recently on the Expt. Plantation Kuala Lumpur. These trees are growing on a hill side, in rather poor laterite soil where they are growing well and looking remarkably healthy. They are about 12 ft. in height and produced a heavy crop of fruits; upwards of one hundred were obtained from one tree. I have also heard of the Avocado pear fruiting well in Negri Sembilan and in Singapore so there appears to be no reason why this fruit should not be more extensively grown throughout the Peninsula.

MINUTES OF THE PLANTERS' ASSOCIATION OF MALAYA.

Annual General Meeting, held at 10.30 a.m. on April 26th 1914, at the Chamber of Commerce, Kuala Lumpur.

Present: Mr. R. W. Munro (Chairman)
„ H. C. E. Zacharias (Secretary) and
From Bagan Datoh D. P. A. Mr. J. Milne Counsel
„ R. H. W. Davidson
„ R. G. Bayley
„ Batang Padang D. P. A. „ F. J. Ayris,
„ W. H. Tylden Patterson,
„ J. M. P. Landon

„	Batu Tigà D. P. A.	„ T. J. Cumming
		„ J. Grieve
		„ H. L. Jarvis
		„ W. S. Reeve Tucker
„	Johore P. A.	„ W. N. Gawler
		„ H. H. Ramsay
„	Kapar D. P. A.	„ J. G. Cruickshank
		„ L. Mooijaart
		„ E. W. Harvey
		„ V. D. French
		„ E. A. Ash
		„ C. Henly
		„ W. R. H. Brock
		„ R. K. Walker
		„ W. H. King-Harman
„	Kajang D. P. A.	„ K. G. Furley
		„ O. P. Dakeyne
		„ C. Burn-Murdoch
		„ E. G. Leyne
„	Kelantan P. A.	„ G. W. Templer
		„ H. Greme Anderson
„	Klang D. P. A.	„ G. H. Bennett
		„ E. C. Wakefield
		„ W. D. Magill
		„ S. C. Yoemans
		„ A. E. Chapman
From	Kuala Langat D. P. A.	„ G. C. Ash
„	Kuala Lumpur D. P. A.	The Hon. Mr. E. B. Skinner
		Mr. R. M. Skinner
		„ A. Turton
		„ G. Allan Grant
		„ H. Armstrong
		„ J. A. Baird
		„ F. Clyde Jeavons
		„ A. Shelton Palmer
		„ F. G. Harvey
		„ Wm. Fraser
		„ C. J. Arnold
		„ Ronald J. Rogers
		„ A. Keightley Smith
		„ D. G. Gardner
		„ C. W. Jones
		„ G. D. van Someren

„	Kuala Selangor D. P. A.	„	Thos. H. Menzies
		„	G. C. Bailey
		„	J. M. Booth
„	Lower Perak D. P. A.	„	Maurice Maude
„	Malacca P. A.	„	J. W. Campbell
		„	E. A. Barbour
„	Malay Peninsula Agr. Ass.	„	F. Duncan Hindley
„	Negri Sembilan P. A.	„	J. D. McCulloch
		„	V. A. Tayler
		„	F. J. Lloyd
		„	A. Dupuis Brown
„	Ulu Selangor D. P. A.	„	M. D. Fallon
		„	F. W. Davies

Hon. Members: Mr. E. Macfadyen, Mr. L. Lewton Brain (Director of Agriculture), Mr. E. S. Hose (Acting Controller of Labour), Dr. C. L. Sansom (P.M.O.) and Mr. R. W. Munro.

Visitor: Mr. A. K. E. Hampshire.

Mr. *Barbour* proposes that the Central Perak Planters' Association be formally affiliated, as from Jan. 1st, 1914.

Mr. Macfadyen seconds this proposal, which is carried unanimously.

London (1914) Exhibition.

The Secretary reads the following correspondence:—

Kuala Lumpur,
10th February, 1914."

"Staines Manders Esq.,

"Dear Sir,

Reverting to your letter of Sept. 4th, I am instructed to inform you that this Association have appointed Mr. H. M. Darby of Malacca, and Mr. H. E. G. Solbe of Batu Tiga, to be their Delegates at the forthcoming London Exhibition to be held next June."

"Believe me &c.,
(Sgd.) H. C. E. Zacharias,
Secretary."

The *Secretary* reports that Johore had contemplated, during the last month or two the advisability of having a separate stand at the Exhibition, but that after some correspondence with the Chairman of the Johore P. A. the project had been dropped.

Kelantan on the other hand, he understood, was proceeding with a separate stand of their own at the said Exhibition.

Congress of Tropical Agriculture.

The *Secretary* reads the following correspondence, which is approved of:—

INTERNATIONAL CONGRESS OF TROPICAL AGRICULTURE,
LONDON, 1914.

"Imperial Institute,
London, S. W.,
5th January, 1914."

"Dear Sir,

The International association for Tropical Agriculture has arranged to hold its Third International Congress at the Imperial Institute, London, S. W. in June, 1914. A Circular, dealing with the organization of the Congress and the subjects to be discussed, is enclosed. The Congress is being organised by the British Section of the International Association, which includes among its members the principal agricultural Officers in the British Colonies and Protectorates.

You will see that one of the chief objects of the congress is the discussion of problems in tropical agriculture and forestry and in the economic development of tropical countries.

As your Members will be interested in these problems the Organising Committee for the Congress hopes that your Committee will render assistance by (1) subscribing * to the funds of the Congress, (2) appointing one or more delegates to attend the meetings and take part in the discussions and (3) bringing the congress to the notice of the members.

Additional copies of the preliminary circular can be supplied if required."

"We are, dear Sir,
Yours faithfully,
(Sgd.) Thomas A. Henry
Harold Brown.
Hon. Organising Secretaries to the Congress."

"The Secretary,
Planters' Association of Malaya."

"Kuala Lumpur, 10th February, 1914."

"The Hon. Organising Secretaries of the Third International Congress of Tropical Agriculture, Imperial Institute, London, S. W."

"Dear Sirs,

I beg to acknowledge receipt of your circular of the 5th ulto., which I have submitted to my Committee, by whose instruction I now beg to enclose our application for membership and P. O. for £1-0-0.

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* "Societies subscribing not less than £5 to the funds of the Congress will be included in the official list of donors, which will be printed in the programme to be published before the opening of the congress."

Mr. H. M. Darby of Malacca, who proposes to be in London at the time, has been appointed as our delegate."

"Believe me, etc.,
(Sgd.) H. C. E. Zacharias,
Secretary."

"International Congress of Tropical Agriculture,
London, 1914."

"Imperial Institute,
London, S. W.,
9th March, 1914."

"Dear Sir,

We have to acknowledge, with many thanks, the receipt of your letter dated the 10th February enclosing a postal order for £1 as a subscription for membership of the Congress of Tropical Agriculture. A formal receipt is attached.

We note that Mr. H. M. Darby of Malacca has been appointed to represent your Association at the Congress."

We are, etc.,
(Sgd.) Thomas A. Henry
„ Harold Brown
Hon. Organising Secretaries."

"The Secretary,
The Planters' Association of Malaya.

Batavia Congress.

The *Secretary* lays on table handbooks and pamphlets relating to this Rubber Congress and Exhibition and reads the following correspondence:—

"Kuala Lumpur, 10th February, 1914."

W. E. van Rijnberk Esq.,
Singapore.

Dear Sir.

I thank you for your favour of 23rd ulto. and now beg to inform you that my Committee have met in the meantime and decided upon the conditions to be attached to the £50 cup to be presented by this Association, viz:

"For any exhibit of Plantation Para, of whatever grade or form (in lots of not less than 100 lbs.), which attains the highest standard on the basis of the proposed R. G. A. evaluation tests."

I need perhaps not enlarge on the great importance of placing the sale of rubber on a basis of its intrinsic value to manufacturers, as against that of its apparent value, hitherto in vogue, and I am glad that the Batavia Exhibition will be the first, at which at least one prize will be awarded on this principle.

My Committee also wish me to enquire whether such tests can be carried out in Java, and if not, how your Committee would suggest dealing with the matter, both from the practical and the financial point of view.

Believe me, etc.,
(Sgd.) H. C. E. Zacharias,
Secretary.
"Kuala Lumpur, 8th April, 1914."

H. C. E. Zacharias Esq.,
Secretary, The Planters' Association of Malaya,
"Dear Sir,

I beg to refer to your letter dated 10th of February, of which I had sent a copy to the Standing Committee at Batavia, but to my regret I did not receive a reply as promptly as I expected and I therefore wrote them once more. They now write me that they are not aware of the R. G. A. regulation tests, and that they would feel very much obliged if through me, you could let them have a copy of the R. G. A. regulations. Anyhow, I am instructed to inform you that a complete laboratory will be fitted out at the Exhibition, where chemical and physical rubber tests will be made and there will also be a complete vulcanization plant for testing purposes. I therefore take it for granted that although the R. G. A. rules are not known yet, we shall be able to carry out the necessary tests at the Exhibition.

Yours faithfully,
(Sgd.) W. E. Van Rijnberk,
Hon. Secretary for The Singapore Sub-Committee,
I. R. C. E., Batavia, 1914.

W. E. van Rijnberk Esq.,
Singapore.
Dear Sir,

I thank you for your favour of the 23rd ulto. and enclosure.

The tests referred to in my letter of Feb. 10th as "the proposed R. G. A. evalauation tests" are those proposed by Dr. Schidrowitz and adopted by the Standardization Committee of the Rubber Growers' Association. Dr. Schidrowitz has publicly declared (vide *India Rubber Journal* of Feb. 28th 1914) that the exact nature of these tests will shortly be published in the ordinary way in the scientific and technological press, but that in the meantime he is quite ready to give full information on the subject to any bona-fide inquirer.

The simplest way of obtaining the necessary data would therefore seem, for your Committee to address Dr. Schidrowitz direct.

Believe me, etc.,
(Sgd.) H. C. E. Zacharias,
Secretary.

"Office of the Director of Agriculture
Federated Malay States,
16th March, 1914."

No: 7 in 520/1913.

'Sir,

"Batavia Exhibition."

I have the honour to inform you that the Federated Malay States Government has consented to the use of models, photos, etc., obtained for the London Exhibition also at Batavia. There will however be no Federated Malay States Government Exhibit at Batavia, but one collected by the local Committee.

I am also informed that the Federated Malay States Government will pay the actual expenses together with a small allowance for incidental expenses to both the official and unofficial delegates."

"I have, etc.,
(Sgd.) B. J. Eaton,
for Director."

The Secretary,

The Planters' Association of Malaya,

Mr. *Munro* reviews the progress made with this Congress and bespeaks the support of all planters. The Congress and Exhibition were being organized with characteristic thoroughness and, he had no doubt, would form an invaluable opportunity for all interested in the actual production of rubber of exchanging views and learning something new.

They now had to appoint three delegates and he would propose Mr. Macfadyen as one of them.

Mr. *Macfadyen* regrets being unable at this hour to state definitely his ability to attend. He would therefore suggest the appointment of Messrs. Munro, E. B. Skinner and Zacharias.

These delegates were elected.

Repression of Drunkenness.

The *Secretary* reads the following correspondence:—

"Kuala Lumpur, 16th January, 1914."

The Under Secretary, F. M. S.,

'Sir,

"*Repression of Drunkenness.*"

I have the honour to revert to my letter of July 21st., to which I am as yet without a reply, and to state that at a meeting of this

Association held on the 11th inst., I was instructed further to submit that beer be included in the definition of "spirituous liquor."

I have, etc.,
(Sgd.) H. C. E. Zacharias,
Secretary.

KLANG DISTRICT PLANTERS' ASSOCIATION.

"Klang, 12th March, 1914."

The Secretary,
Planters' Association of Malaya,
Kuala Lumpur.

Dear Sir,

I am instructed to write to you to the effect that this Association is of opinion that Government be asked to place some restriction on the sale of beer to Tamil Coolies.

I am, etc.,
(Sgd.) A. N. Symons,
Hon. Sec., K. D. P. A.

Mr. *Macfadyen* would like Mr. Skinner to tell them, how far this matter had gone.

The Hon. Mr. *E B. Skinner* said the Government were elaborating a system for the restriction of the total amount of toddy produced and for the regulation of its standard. As regards other spirits, further legislation was also contemplated, and he would not be surprised, if the question of beer was also going to be dealt with at a very early date.

LABOUR CODE.

The *Secretary* reports having sent out the following circular, as instructed:—

"Kuala Lumpur, 16th January, 1914."

Dear Sir,

As you are no doubt aware the Labour Code defines in Sect. 40 a place of employment as one on which ten or more (free) Indian Immigrants are employed.

This Association has been all long of opinion that this provision is highly injurious to the planter, who recruits his labour from India, and has therefore tried to obtain an amendment of the law. In reply we have now been told that sufficient grounds have not been advanced for such alteration and as a result of a discussion on this subject at our last meeting held on the 11th inst. I was instructed to write to all constituent Associations, asking for

their views and for concrete examples of the unfairness of this provision.

I shall be glad to hear from you accordingly and thanking you in anticipation for any assistance that your members may be able to give.

I am, etc.,
(Sgd.) H. C. E. Zacharias,
Secretary.

The replies so far came to hand, contained however no concrete examples of the unfairness of this provision.

Mr. *Mooijaart* asks why the definition was ever changed. In the old Enactment of 1908 it was defined as any place where employment was carried on by and on behalf of an employer. He would instance the case of a Chinese owning five or six kampongs, each of 5½ to 6 acres and employing 6 coolies—30 or 40 altogether. He got round the law by registering one kampong in his own name, one in his wife's, one in his son's, and so on.

Mr. *Tayler* thinks the matter an important one which should be proceeded with. Government should be urged to amend the clause, not because there was any hardship in concrete cases, but because the whole principle was wrong.

Mr. *Hose* would remind the meeting, that the provisions of the Labour Code with regard to crimping applied equally to all persons, whether employing less than ten labourers or not, and it was always open to employers to proceed against such persons accordingly.

As regards the change made, it seemed probable to surmise that it had been decided upon, in order not to impose upon employers of such a small number of labourers as less than ten all the restrictions and obligations of the Labour Code.

The Hon. Mr. *E. B. Skinner* points out it had been the practice in Krian for many years to allow coolies to go off during slack seasons to work on native holdings growing padi, so that there was a good deal to be said for the Enactment as it stood at present as regards the north. In amending it therefore there should be anyhow a general principle of granting exemption to certain areas. What happened as a rule was that coolies absconded, went to those small holdings, and after a month or so they went to some other and bigger estate, where they were taken on the strength of their tale of having worked on the small holding. That was how they evaded the law.

Mr. *Macfadyen* says it was practically impossible to convict a small employer of crimping and they relied for equalising the matter on the incidence of immigration assessment. If there was

really a sense of grievance as to the operation of the limit imposed it seemed right they should press the question.

Mr. *Counsel* says that the position in Krian was on the face of it a special case and that it seemed unreasonable to shape the whole law to apply to one solitary special case. He considers that the matter should be gone into and proposes "that the matter be referred to the Standing Committee to take such steps as they may deem desirable."

Mr. *Barbour* seconds this motion, which is carried unanimously.

"INDIAN IMMIGRATION COMMITTEE."

The *Secretary* reads the following correspondence, which is received with applause, *re* the payment of local transport by the Indian Immigration Committee and *re* the reduction of Agents' charges:—

"Office of the Controller of Labour,
S. S. and F. M. S.,
Kuala Lumpur, 23rd February, 1914."

No. 13 in 579/1913.

Sir,

I have the honour to forward for the information of the members of your Association a copy of a letter from the Deputy Controller of Labour, Penang, to Messrs. Kennedy and Company dated the 11th instant, and a copy of Messrs. Kennedy and Company's reply thereto dated the 16th instant.

I have, etc.,
(Sgd.) E. S. Hose,
Ag: Controller of Labour, F. M. S.

The Secretary,
Planters' Association of Malaya,
Kuala Lumpur.

"Labour Office,
Penang, 11th February, 1914."

No. 7 in 1170/1913.

Gentlemen,

I have the honour to inform you that your letter dated the 3rd February on the subject of your Agency charges in connection with the forwarding of coolies to estates was laid before the Indian Immigration Committee at the meeting held at Kuala Lumpur on the 6th instant.

2. The Committee understand that the terms on which your Company are now prepared to undertake the business of handling and forwarding coolies on their arrival from India are as follows:—

A. Charges to be made if coolies are taken delivery of at the depot gates:—actual cost of feeding plus an Agency charge of 25 cents per cooly. The Agency fee is to be reduced to 15 cents in any month in which more than 100 coolies are dealt with for one employer and to 10 cents in any month in which more than 200 coolies are dealt with for one employer.

B. Charges to be made if coolies are forwarded to place of employment:—as above with an additional fee of 25 cents per cooly. This additional fee is to be reduced to 15 cents in any month in which more than 100 coolies are dealt with for one employer and to 10 cents in any month in which more than 200 coolies with passenger fares and telegrams are to be recovered from the Deputy Controller of Labour, Penang, but no extra charges to be allowed for watchmen etc.

3. Although these charges are higher than those made by Messrs. Boustead Hampshire & Co., the Committee realise that the business of entraining coolies at Penang involves closer supervision than at Port Swettenham and that the volume of your business is not so great as that of Messrs. Boustead Hampshire & Co. in this respect and they are therefore prepared to recommend employers through the Planters' Association of Malaya to accept the terms now offered.

4. It is understood that this arrangement will take effect on the coming into operation of the Committee's proposal to pay local fares from the Immigration Fund.

5. I shall be obliged if you will be so good as to confirm these proposals in writing.

I have, etc.,

(Sgd.) E. W. F. Gilman.

Deputy Controller of Labour, Penang, and

Secretary, Immigration Committee.

Kennedy & Co.,

Penang, February 16th, 1914.

The Deputy Controller of Labour,

Penang, and Secy.,

Immigration Committee, Labour Office, Penang.

Sir,

"Agency Charges."

We have the honour to acknowledge receipt of your letter No: 7 in 1170/1913 dated the 11th instant for which we thank you.

We take note that your Committee are prepared to recommend the acceptance of the terms set out in our letter of the 3rd inst. and your reading of which we beg to confirm.

We have, etc.,
(Sgd.) Kennedy & Co.

Office of the Controller of Labour
S. S. and F. M. S.
Kuala Lumpur, 24th February, 1914.

No: 5 in 618/1913.

Sir,

With reference to my letter of even number dated the 18th December last on the subject of Messrs. Boustead Hampshire and Company's charges for feeding and distributing Indian Immigrants who have received free passages from India, I have the honour to inform you that Messrs. Boustead Hampshire and Company have introduced the lower scale of charges referred to in the said letter with effect from the 1st January last, notwithstanding that the proposal of the Immigration Committee to pay the train and bus fares of labourers to their destinations has, owing to unforeseen circumstances, not yet come into operation.

2. I shall be obliged if you will convey this information to the members of your Association.

I have, etc.,
(Sgd.) E. S. Hose,
Ag. Controller of Labour, F .M. S.

Secretary,
Planters' Association of Malaya.

Kuala Lumpur, 10th February, 1914.

The Hon'ble,
The Colonial Secretary, S.S.,
Singapore.

"LABOUR CODE."

Sir,

I have the honour to draw your attention to the fact that an amendment to this Code, now incorporated in Sect. 161, II, b, 2, was passed at the last meeting of the Federal Council of these States.

The Indian Immigration Committee, however, are unable to carry out the provisions of this amendment, which represents the unanimous wishes of the whole planting community, pending the passing of analogous legislation in the Straits Settlements.

I therefore have the honour to submit that this matter is one of great hardship on all contributors to the Indian Immigration Fund and to urge that the necessary legislation be carried through the Legislative Council of the Colony at the earliest possible date.

I have, etc.,
(Sgd.) H. C. E. Zacharias,
Secretary.

Colonial Secretary's Office,
Singapore, 21st February, 1914.

Misc. 868/1914.

Sir,

I am directed to acknowledge the receipt of your letter of the 10th instant on the subject of an amendment of the law regarding the transport of labourers and to inform you that the amendment is now being considered by the Legislative Council of this Colony.

I have, etc.,
(Sgd.) S. W. Arthur,
for Colonial Secretary,
Straits Settlements.

The Secretary,
Planters' Association of Malaya,
Kuala Lumpur.

Office of the Controller of Labour.
S. S. and F. M. S.,
Kuala Lumpur, 15th April, 1914.

No: 7 in 618/13.

Sir,

With reference to my letter of even number dated the 15th November 1913, I have the honour to inform you that the amendment to the Straits Settlements Tamil Immigration Fund Ordinance enabling the Indian Immigration Committee to pay local railway, steamer and bus fares of assisted immigrants to their places of employment was passed by the Legislative Council on the 27th March 1914.

2. The payment of such local fares will take effect from the 1st proximo, and I enclose for the information of members of your Association copies of notices that have been sent to the Deputy Controllers of Labour at Penang and Port Swettenham, who have been instructed to distribute copies to all employers importing Indian labourers.

I have, etc.,
(Sgd.) E. S. Hose,
Ag: Controller of Labour, F. M. S.

The Secretary,
Planters' Association of Malaya,
Kuala Lumpur.

NOTICE TO EMPLOYERS OF INDIAN LABOURERS WITH ASSISTED PASSAGES TO PENANG.

From and after 1st May, 1914, all expenses incurred

(*a*) in the landing of assisted immigrant labourers at Penang,

(*b*) in the despatching of telegrams by estate agents at Penang to employers stating the number of labourers received in the depôt, and

(*c*) for all train, steamer, and motor-bus fares of such immigrants travelling from the depôt at Penang to their places of employment, will be paid out of the Indian Immigration Fund.

2. From the above date tickets will be issued, free of charge, on the order of the Labour Officer in charge of the depôt for all assisted immigrant labourers travelling by train from Penang to their places of employment.

3. Feeding charges incurred in the depôt will continue to be paid by employers directly or through their agents.

4. In the case of those employers who have appointed agents to pay the feeding charges, and also to despatch the labourers to their places of employment, the steamer or motor-bus fares of the labourers will be disbursed in the first instance by the agents, and will be recovered by them from the Indian Immigration Fund.

5. In the case of those employers who have appointed agents to pay the feeding charges, but make their own arrangements to take delivery of labourers at the depôt, an account of the steamer or motor-bus fares of the labourers (exclusive of the person sent to receive them from the depôt) should be sent to the Labour Office at Penang.

6. In the case of those employers who have not appointed agents either to pay the feeding charges or to take delivery of the labourers the feeding charges must be paid at the depôt before the labourers are allowed to leave. The Labour Department cannot undertake to advance these charges or to be in any way responsible for the payment of them. The person sent to take charge of the labourers should be given sufficient funds to pay the feeding expenses incurred, which can be calculated from the date of the arrival of the labourers in the depôt and the probable date on which he will arrive to take charge of them. The cost of feeding an adult in the depôt at Penang is 8 cents per day. The day of

arrival of the labourers in the depôt should be counted as one day. Receipts will be given by the Food Contractor for all payments made. An account of the steamer or motor-bus fares of the labourers should be submitted as stated in paragraph 5 above.

7. In order to avoid unnecessary delay in payment, statements of accounts should be sent to the Labour Office within seven days of the arrival of labourers on their place of employment.

8. Further information, if required, can be obtained from the Deputy Controller of Labour, Penang.

KUALA LUMPUR, *6th April, 1914.*

E. S. HOSE,
Acting Controller of Labour, F.M.S.

NOTICE TO EMPLOYERS OF INDIAN LABOURERS WITH ASSISTED PASSAGES TO PORT SWETTENHAM.

From and after 1st May, 1914, all expenses incurred

(*a*) in the landing of assisted immigrant labourers at Port Swettenham,

(*b*) in the despatching of telegrams by estate agents at Port Swettenham to employers stating the number of labourers received in the depôt, and

(*c*) for all train, steamer and motor-bus fares of such immigrants travelling from the depôt at Port Swettenham to their places of employment, will be paid out of labourers received in the depôt, and

2. From the above date tickets will be issued, free of charge, on the order of the Labour Officer in charge of the depôt for all assisted immigrant labourers travelling by train from Port Swettenham to their places of employment.

3. Feeding charges incurred in the depôt will continue to be paid by employers directly or through their agents.

4. In the case of those employers who have appointed agents to pay the feeding charges, but make their own arrangements to their places of employment, the steamer or motor-bus fares of the labourers will be disbursed in the first instance by the agents, and will be recovered by them from the Indian Immigration Fund.

5. In the case of those employers who have appointed agents to pay the feeding charges, but make their own arrangements to take delivery of labourers at the depôt, an account of the steamer or motor-bus fares of the labourers (exclusive of the person sent to receive them from the depôt) should be sent to the Labour Office at Klang.

6. In the case of those employers who have not appointed agents either to pay the feeding charges or to take delivery of the labourers the feeding charges must be paid at the depôt before the

labourers are allowed to leave. The Labour Department cannot undertake to advance these charges or to be in any way responsible for the payment of them. The person sent to take charge of the labourers should be given sufficient funds to pay the feeding expenses incurred, which can be calculated from the date of the arrival of the labourers in the depôt and the probable date on which he will arrive to take charge of them. The cost of feeding an adult in the depôt at Port Swettenham is 13½ cents per day. The day of arrival of the labourers in the depôt should be counted as one day. Receipts will be given by the Food Contractor for all payments made. An account of the steamer or motor-bus fares of the labourers should be submitted as stated in paragraph 5 above.

7. In order to avoid unnecessary delay in payment, statements of accounts should be sent to the Labour Office within seven days of the arrival of labourers on their place of employment.

8. Further information, if required, can be obtained from the Deputy Controller of Labour, Klang.

KUALA LUMPUR, *6th April, 1914.*

E. S. HOSE,
Acting Controller of Labour, F.M.S.

NEWSPAPER AGITATION.

The Secretary reads the following correspondence:—

Kuala Lumpur,
Federated Malay States,
17th February, 1914.

No: 2 in 10096/13.

Sir,

I have the honour to refer to your letter dated 10th October, 1913 regarding an article entitled "Indian Coolies in the Federated Malay States" which appeared in the July number of the *Indian Review*. As I verbally informed you the Government did not consider that with the information before it any good purpose would be served by requesting the Indian Government to take action even if the article were held to be actionable.

2. The article in question contained statements generally very similar to and in some cases identical with statements which were contained in certain anonymous letters and petitions which came to the notice of the Government and the Government of India has already been furnished with a report on these allegations.

I understood from you that the Planters' Association was collecting material with a view to preparing a reply to the *Indian Review* allegations and I shall be glad to know how the matter now stands.

I have the honour, etc.,
(Sgd.) E. L. Brockman,
Chief Secretary, F. M. S.

The Secretary,
Planters' Association of Malaya,
Kuala Lumpur, 23rd February, 1914.

The Hon'ble the Chief Secretary, F. M. S.,
Kuala Lumpur.

Sir,

I have the honour to acknowledge receipt of your letter No. 2/10096 of the 17th inst.

As you will have seen from the Minutes of our Meetings, Mr. C. T. Ambika Pat Rai has undertaken to investigate the position of the Indian Labourer in this country and will publish a pamphlet on the results of his enquiry.

The pamphlet is now ready and is being forwarded by this week's mail to Madras, where it will be published by the Brahmavedin Press. The English edition should reach us in about six weeks' time, whilst a Tamil Edition is to follow.

A short article by Mr. Rai on the same subject is, I understand, being published in the March number of the *Indian Review*.

This Association is subscribing for a number of these pamphlets of which I shall have the honour to send you a copy, as soon as they reach me.

I have, etc.,
(Sgd.) H. C. E. Zacharias,
Secretary.

He regrets the dilatoriness of the Madras printers, they ought to have received these pamphlets in ample time for this meeting. Under the circumstances there was nothing for it now, but to send them out together with the Minutes of the present Meeting.

.. JAVANESE LABOUR.

The *Secretary* reports that, as instructed, the Standing Committee had at their Meeting held on Feb. 7th duly considered the claim of the Labour Association Ltd. for the patronage of this Association and had decided the same in the negative.

MARKETING OF RUBBER.

The *Secretary* reads the following correspondence:—

Kuala Lumpur, 16th January, 1914.

Messrs. The Manhattan Rubber Mfg: Co.,
18 Vesey St.,
NEW YORK.

Dear Sirs,

I thank you for your letter of the 12th ulto., which I read out at the last General Meeting of this Association held on the 11th

inst. Further publicity is given to your letter through the fact that practically all the newspapers in the Peninsula are reproducing it in full in their reports of the meeting, and I may add that all speakers at the said meeting were very strongly in favour of consumer and producer being brought into direct relationship and of the present mischievous system of antagonistic middlemen being done away with.

I therefore trust that the publicity thus afforded will result in a number of plantation companies opening up correspondence with your direct and that this lead to business which I am sure can but be mutually profitable.

Believe me, etc.,
(Sgd.) H. C. E. Zacharias,
Secretary.

THE MANHATTAN RUBBER MANUFACTURING CO.

New York, March 18th, 1914.

Secretary,
Planters' Association of Malaya,
Dear Sir,

We wish to thank you for the courtesy extended in your letter of January 16th which is in reply to a letter by Mr. Townsend the President of this Company, dated December 12th, 1913.

It may interest you to know that as a result of the trouble you took in connection with Mr. Townsend's letter, we have received from Malaya one letter from an estate offering to ship us rubber direct,—two letters from general merchants, offering to act as Agents for us and two letters from Chinamen, offering to sell us Plantations.

We have replied to the Estate offering to sell us direct and to one of the merchants, asking them to forward us samples of their rubber in sufficient quantities so that we may make thorough test. In the event of the rubber proving satisfactory, we will go further into the matter of making direct purchases.

Yours very truly,
The Manhattan Rubber Mfg. Company,
(Sgd.) A. S. Hardy,
Manager, Foreign Department.

Mr. *Barbour* remarks that, as they all knew, Managers were not free Agents, and the sale of the rubber produced by them was a matter which in most cases lay not in their hands at all. The position seemed to him an unfortunate one and he pleaded for greater latitude.

Mr. *Munro* quite agrees with these remarks and would mention that the first direct steamer had lately cleared Port Swettenham for New York; and he hoped this ship would be the forerunner of many and that there by the practice of direct dealings between the producer in this country and the consumer in America would firmly be established.

Chairman's Report.

Mr. *Munro* tables his report for 1913/4 and moves its adoption.

The Hon. Mr. *E. B. Skinner* seconds the motion.

Mr. *Macfadyen* feels reluctantly obliged to move an amendment to this motion, as he had to dissent from some sentences towards the end of the report. Before doing so, however, it gave him the greatest pleasure to be able to congratulate the Chairman on the excellent report he had presented. It appeared to him to contain fuller and more interesting information than any previous report, and to be a perfect model of the way in which that information should be set out. He thought they could congratulate themselves further on the general tone in which it is possible for a report of this kind to be presented to the Association at this moment.

As regards standardization, he wished to refer to the installation of a vulcanizing plant in Kuala Lumpur by the Agricultural Department.

It was really amusing to read the correspondence on this subject for months at Home between the wise-acres of the rubber industry and the Napoleonic speeches of one chairman after another, the result of all of which had hitherto been nil. Yet in Kuala Lumpur in less than twelve months they had succeeded in getting established a thoroughly up-to-date testing station which in a very short time would be doing its work. Whether all the advantages they expected would follow remained to be seen, but at any rate they could claim that in Kuala Lumpur a serious effort had been made, and the only one hitherto made, towards that kind of standardisation which did appear possible in connection with the sale of rubber.

He also must thoroughly agree with the Chairman's appreciative remarks on the recent developments in the matter of the Planters' Loan Fund; and he only hoped that this Fund would gradually be turned into a great Agricultural Bank.

Another subject touched upon in the report was the incidence of taxation. It was time, that the heavy direct charges on land, imposed at a time of temporary excitement, and which had certain-

ly operated, and would do so more and more, as a handicap on the development of the land of this country, were removed. The vice of the heavy quit rents on land had always appeared to him that they played into the hands of the large capitalist, making it very easy for him to obtain large areas of land and tie up the development of the country for a long time to come, whereas the small capitalist was prevented from acquiring a sufficient amount of land to develop his enterprise.

With regard to the export duty he entirely agreed it would be a great advantage to have a uniform rate of duty for all grades, pointing out that it would remove the necessity to break open cases, which it would become increasingly necessary for Customs officers to do as more rubber was exported and the revenue from that source became more important to Government. It would also, he held, be a further advantage to them in that it would raise the percentage of higher grades (applause).

The main point, and one raised by the Chairman in regard to the export duty, was that Government ought now to promise not to collect duty when rubber fell below a certain price. No body could object to export duty seriously so long as prices were high enough to make the business extremely remunerative. Other countries, were finding however that export duty could not be collected when the export of rubber ceased to show a profit, because it simply killed the business. Government should recognize that here, and a promise on that point would be of the utmost value to those connected with the further development of the rubber industry in this country (applause).

Referring to the favourable position of the country in regard to labour, he would remind the meeting of the new procedure under which committees would, in certain eventualities, confer with Health Officers. He believed something in the nature of this procedure had been suggested, at an early stage of the controversy over the health question by Sir Edward Brockman, at all events, in the form finally adopted, they might hope that the existence of an appeal to such committees would save them in future from "irksome and unnecessarily stringent action" such as, in his opinion, they had justly complained of in the past. The new procedure would perpetuate the improved relations between planters and the Sanitary authorities.

The amendment he desired to move was the omission from the report of the passages dealing with the subject of Discharge Tickets; as he felt he must protest against the implication contained in those paragraphs that a legalized discharge ticket system would mean an attempt at re-introducing indentured labour. He

did not for one moment believe it would. He must also protest against the inference which was to be deduced from a later sentence that registration fees would penalise local recruiting in a manner which would have the same result. He did not for one moment believe that practices would be restored to which would make the freedom of the cooly illusory. He entirely agreed that the rubber industry had been built up on labour which was absolutely free. The only freedom the cooly would lose would be the freedom he at present enjoyed of disregarding all his obligations to his employer (applause).

This was not a matter on which he wished to cause a division of opinion in the Association, but he could not forget that it was only about a year ago since, at the instance of that Association, a Committee was sitting, partly composed of Government officials and partly of members of that Association, discussing this very question. That Committee elaborated a scheme under which he believed the legitimate freedom of the coolie would have been amply protected, and at the same time the legitimate interests of the employer would for the first time have received recognition. He supported that proposal and could not now vote for the adoption of a report in which the principles on which it was based were condemned. And in so far as the report was adopted and in that way became the report of the Association, he thought it would be very unfortunate that this should go out to the world as the recorded opinion of the Association on the question of discharge tickets, because he believed firmly that the majority of planters throughout the country were in favour of a system of legalized discharge tickets.

He believed the chairman, like himself, had long advocated a system of voluntary discharge tickets and could only take it he believed the legalization of the discharge ticket would make all this difference. He moved as an amendment that the paragraphs indicated be deleted (applause).

Mr. *Cruickshank* seconds the amendment. He, together with Mr. Macfadyen, had been a member of a special Commission, appointed by Government, to report on the advisability of introducing a system of discharge tickets on the Ceylon lines. That Commission had fully gone into the subject and, with one exception, all the planting members had been unanimous that such a system was not only necessary, but also quite feasible. A great deal had been said about restricting the liberty of the coolie, but nothing concrete could be brought forward. The liberty of the coolie would remain the same as now; discharge tickets would merely give employers a chance of tracing those who tried to get out of their legal respon-

sibilities, by providing a ready means of establishing the identity of the whole labour force employed in the Peninsula. Surely this was a most reasonable request to make, and he must disassociate himself completely from the statements to the contrary made in the Chairman's Annual Report. He therefore had much pleasure in seconding Mr. Macfadyen's amendment.

Mr. *Campbell* is also anxious to identify himself with the amendment. The question was a practical one and could be proved, not merely by academic discussions, but by actual experience. The Discharge Ticket system had been voluntarily introduced in Malacca and was there working splendidly. Why should its result be different, if generally introduced? There was no question of limiting the freedom of the coolie at all. All that was needed was a legal provision that no coolie should leave the country or get employment, until he produced his discharge ticket.

Mr. *Mooijaart* considers a further definition of the proposed system necessary. Without this, it seemed impossible to say whether the freedom of the coolie was being limited or not. He had before him a scheme proposed in 1908 by a P. A. M. sub-committee appointed ad hoc; this was definite enough, but he did not know, whether this system was still being advocated now.

The Hon. Mr. *Skinner* repeats that he, for one, was no believer in Discharge Tickets, for reasons he had stated often. One point, alone, seemed quite sufficient reason to him, and they all seemed to forget this, namely that it would be playing into the hands of the coolie, as it would strengthen him in getting work elsewhere. He need only say he was going to India, get his ticket and then, sure as anything, he would sell it for cash to a shopkeeper. They would practically be placing themselves in the hands of the coolie and the shopkeeper and the employers would be worse off than ever. By the very nature of things, discharge tickets would tend to become a marketable instrument—just as had been the experience of other countries.

Mr. *Barbour* was sure that such abuse could easily be stopped by attaching the man's photo to his discharge ticket. He quite agreed with Mr. Campbell as to the successful working of the system in Malacca; the only drawback was that their system of tickets did not extend to Negri Sembilan and vice versa. He hoped the arrangement would be made a reciprocal one between the two countries anyhow.

Mr. *Burn-Murdoch* quite fails to understand how people could claim that preventing a coolie from leaving the country, as and when he liked, that providing a most elaborate passport system with the holder's photograph &c.; that all these and similar

measures were not a most effectual restriction of the freedom of the individual.

Mr. *Munro* sums up the discussion on his Report. He thanks Mr. Macfadyen for his kind opening remarks and wishes to say how much he was indebted to others, officials and planters alike, for the information he had been able to gather together in this report.

As regards the question of Discharge Tickets, he had only expressed his personal opinion, of course, and much regretted to see, how much this differed from that of those present. One thing he must emphasize and that was that during the past year a totally new situation had arisen through the attempt made to influence Indian public opinion adversely against the treatment of their compatriots in this Peninsula. This attempt had partially succeeded, in as much as it had rendered India very suspicious of the least movements of theirs over here, and it had partially failed, because the allegations were so utterly untrue. He would ask them whether it was politic at such a juncture to advocate any system which seemed to interfere seriously with the personal liberty of the Indian subject over here or whether it was not his duty as their Chairman to say nothing in his official pronouncements which could in any way be construed adversely or would at all militate against recruiting. He therefore much regretted the whole discussion, and, still more, the proposed amendment.

The amendment is then put to the vote and declared carried.

The report, subject to the amendment, is adopted.

Accounts.

Mr. *Munro* proposes that the Accounts presented for the year ending March 31st 1914 be passed.

Mr. *Macfadyen* seconds the motion, which is carried unanimously.

Chairman.

Mr. *Munro* announces that the only candidate for the Chair was Mr. Macfadyen, who had been nominated by the Batang Padang, Batu Tiga, Central Perak, Johore, Kajang, Kapar, Kelantan, Kuala Langat, Kuala Lumpur, Kuala Selangor, Lower Perak, Malacca, Malay Peninsula Agricultural, and Ulu Selangor Associations.

This unanimity obviated the necessity of a ballot and he therefore had now great pleasure in declaring Mr. Macfadyen duly elected as chairman for the current year.

It was at the same time his pleasing duty to congratulate Mr. Macfadyen on his recent appointment to the Federal Council, a

distinction all Members of this Association were delighted to see conferred on one who had their confidence in so striking a measure.

Mr. *Munro* vacates the Chair, which is taken by The Hon'ble Mr. E. Macfadyen, who thanks the Association for the honour done him. The retiring Chairman had referred to the removal, by death, of E. V. Carey, the greatest of their chairmen and the one who to many of them would always remain the ideal Planters' Chairman. To succeed to the position filled by E. V. Carey and by successors, any of whom it was an honour to follow, must be more gratifying to the ambition of a planter in this country than the attainment of any other public position open to him; and he must thank them, from the bottom of his heart, for having elected him for a second term, and by an unopposed return, to this honourable post.

Assistants on Estates.

Mr. *Macfadyen* would like to take this opportunity of referring to the large numbers of European planters of good reputation now out of employment in the country, and hoped all the members of the Association would exercise what influence they were able to in preventing the introduction into the country of more young planters directly appointed form Hone, while there were perfectly competent men on the spot (applause).

Constituent Associations.

Mr. *Macfadyen* said he wished to add a word about Southern Planters' Association, of which there had been some talk lately. He had been asked to give his opinion on the subject and he therefore wished to state that the policy of the P. A. M. had always been to foster the formation of local associations to represent planting interests, and he was sure if southern associations found they had interests in common which could be better served by their uniting for that specific purpose they would have every assistance and the good wishes from the P. A. M. in doing so, as he took it they might count upon the loyalty of the association concerned. Whether it would serve a useful purpose was for them to decide, though personally he should have thought the case would have been met by meeting when necessity arose. In any case it was a matter for them, and one in which it would be extremely imprudent for the P. A. M. to take sides.

Mr. *Gawler* points out that the Chairman's suggestion of meeting when occasion arose was what had actually been decided upon. He also must mention that it had been the Johore Association, which from the very start had always been against any idea of breaking away from the parent body. They all fully realized that only in union was strength to be found and he was particularly

anxious to dispel misconception, which had apparently arisen in some quarters, that the Johore Association was pursuing particularistic tendencies. Nothing was further from them and he was glad to have this opportunity of making an unqualified statement to this effect.

Mr. *Campbell* describes the meeting of employers at Malacca and concurs with the last speaker, that there was no idea whatever of separating any southern association from the main body of the P. A. M.

Elections.

The *Secretary* reports that the ballot for the Standing Committee had resulted in the following being elected:—

Messrs. H. R. Quartley, E. B. Skinner, M. Maude, A. J. Fox, A. Dupuis Brown.

The Secretary then announces the Ballot for the Benevolent Fund Committee.

The following are declared elected:—

Messrs. Quartley, Kelley, Fox, J. Argyle Robertson, A. Dupuis Brown, F. G. Harvey, W. D. Bryce, J. McCulloch, J. G. Cruickshank and W. Duncan.

The *Chairman* announces the election of Mr. Zacharias as Secretary with 138 votes out of a total of 142 cast.

Budget For 1914/5.

The *Secretary* submits the following estimates for the year:—

The Planters' Association of Malaya.

Budget for 1914-5.

To Secretary	$2,400	By Subscriptions	$5,000
„ Legal Expenses	250		
„ Library	175		
„ *Agricultural Bulletin*	750		
„ Printing & Stationery	300		
„ Postages & Incidentals	230		
„ Office Rent	400		
„ Reserve	495		
	$5,000		$5,000

(Sgd.) H. C. E. Zacharias,
Secretary.

The Hon'ble Mr. *E. B. Skinner* considers that the subscription had been very considerably underestimated and he thought they would be more likely to aggregate $5,900. On the expenditure side, he was sorry to see the item "Legal Adviser" being done away with and an item of $250 for legal expenses substituted. He considered it most advisable that the Association should brief a Legal Adviser

of their own, to whom all legal matters could be referred to as a matter of routine. Again, he thought the finances admitted now of their increasing the Secretary's salary. Mr. Zacharias had now been their Secretary for ten years and was still drawing the $200/- he was receiving, when he first took up his duties. If they increased this now to $3,000 per annum, it would still leave them with a reserve of $545 to carry forward.

Mr. *Macfadyen* explains that the subscriptions were always an uncertain item and it was for this reason that the lower figure had been inserted in the estimates.

As regards the Legal Adviser, he thinks they could without one and advocates trying the experiment for a year anyhow.

The question of raising the Secretary's salary was one, of which he felt, sufficient notice had not been given. He quite agreed that it would be difficult to overpay Mr. Zacharias, but under the circumstances considered it would be more in order if this question was deferred until the next meeting.

Mr. *Counsel* having seconded Mr. Skinner's proposal, the motion for substituting "Legal Adviser $500" for "Legal Expenses $250," is put to the meeting and declared lost.

Mr. *Maude* seconds Mr. Skinner's proposal that the Secretary's salary be increased to $3000 p.a.

Mr. *Barbour* proposes and Mr. *Cruickshank* seconds that this question be deferred until the next meeting.

The amendment is put to the vote and declared carried.

Mr. *Burn-Murdoch* then proposes, Mr. *Campbell* seconds, and it is carried unanimously that in the meantime the Estimates, as submitted, be adopted, and that the subscription for the current year be fixed at $100 per delegate, as before.

Honorary Member.

The Hon'ble Mr. *E. Macfadyen* refers to the long and meritorious career in these States of their old legal friend, Mr. G. H. Day, who had always identified himself with the planting interests. He had been their legal adviser for many years and now, that he retired from the East, he thought it only fit that he should be made an Honorary Member of this Association.

Mr. *Munro* seconds the motion with great pleasure and adds how helpful Mr. Day's advice had always been.

The motion is carried unanimously.

General.

The *Chairman* points out that there were still on the Agenda four items, *viz*:

Panama-Pacific Exposition

Repatriation of Unfit Indian Immigrants

Kelantan

Alteration of Rule 17.

If there was no urgency for these, he would suggest that their discussion be held over until their next meeting.

Agreed to.

Mr. *Counsel* says there was one matter, he wished to bring up, *viz.* the very serious damage done by rats in the Bagan Datoh District.

He therefore begged to propose that the P. A. M. approach the Government to urge that adequate and immediate steps be taken to deal with the rat pest in the native holdings in the Bagan Datoh, Rungkup and Melinting districts.

Mr. *Cruickshank* seconds the motion, which is further supported by Mr. *Munro* and carried unanimously.

Mr. *Campbell* reminds the meeting that nothing had yet been done to effect the extension of the F. M. S. Agricultural Dept. to include Malacca particularly and the Colony in general, and instances the serious state of affairs regarding locusts.

The *Chairman* says that the matter is being pressed and that he would personally see to it that the matter was not allowed to drop.

The *Secretary* lays on table a copy of Mr. H. R. G. Leonard's "Colloquial Telegu."

The meeting terminates at 12.30 p.m.

H. C. E. Zacharias,
Secretary.

KANJANG DISTRICT PLANTERS' ASSOCIATION.

Minutes of the Annual General Meeting.
Held at the Kajang Club at 3.30 p.m. 24th April, 1914.

Present Mr. C. Burn Murdoch (Chairman), Messrs. P. F. Wise, R. C. M. Kindersley, E. M. Schwabe, O. P. Dakeyne, K. G. Furley, H. W. Rickeard, A. C. Hayton, C. P. Everard, and H. L. Hixon.

The minutes of the last General Meeting were read and confirmed.

Batavia Congress. The Chairman reported having received a complimentary ticket for the Batavia Congress from the Secretary for the Singapore Committee, which he had been obliged to refuse, as he expected to be on the leave at that time. He had since received a further letter from the Secretary, saying that the Singapore Committee were most anxious that an official delegate of the Association be appointed to attend the Congress.

A letter was then read from Mr. C. G. Jeavons of Balau Estate, suggesting that he be, if possible, appointed delegate, failing the appointment of any other member. Mr. Jeavons mentioned that he proposed in any case attending the Congress.

On the proposition of Mr. E. M. Schwabe, seconded by Mr. R. C. M. Kindersley, it was decided that the matter be left over for the present to see if Mr. W. R. S. Ladell, of the Société Financière des Caoutchoucs would attend as delegate, and that Mr. Jeavons' letter be held over in the meantime.

Report and Accounts. The Chairman next presented the report and statement of accounts for the past year, which were passed without comment.

The report was as follows:—

"During the past year there were three General Meetings, in April, September, and November; these meetings were well attended; there were three Committee Meetings.

It is through the initiative of this Association backed by the P. A. M. that we have now a telephone at Kajang Goods Station, for this we have especially to thank Mr. Macfadyen and Mr. Cummins, who were appointed by the P. A. M. in last season to approach the Government.

Rates of Wages. The rate of wages for Chinese has during the season in review been reduced—since our meeting in September—but there is room for a further reduction. Generally speaking, with one or two noteworthy exceptions, the rates for Tamils remain much about the same—but it is expected that a gradual reduction from inflated rates will come about, that will bring them down nearer to what they were before the boom.

Javanese Rates. The rate of pay for free Javanese has been considerably reduced.

The labour supply in the district is well maintained. This Association decided not to join the Selangor Labour Federation.

Roads. During the year, the main road—within the district—Kajang to Kuala Lumpur has been put into good order. Beyond our boundary, however users of the road have had to endure several miles of road in very bad condition.

Schools. A number of Estates have now established schools for Tamil Children, and the Government's action in allowing afternoon hours for school is thoroughly appreciated.

Health. The health of the district has greatly improved.

F. B. Kendall. This Association deeply regrets the loss it has sustained in the death of Mr. F. B. Kendall and offers its sincerest sympathy to his relatives.

Election of Chairman and Hon. Secretary. On the proposition of Mr. R. C. M. Kindersley, seconded by Mr. O. P. Dakeyne

Mr. C. Burn Murdoch was unanimously re-elected Chairman, as he was willing to act, till he went on leave.

Mr. K. G. Furley was elected Hon. Secretary, proposed by Mr. O. P. Dakeyne and seconded by Mr. E. M. Schwabe.

Election of Committee. The Chairman proposed and Mr. P. F. Wise seconded that last year's Committee be re-elected, Messrs. R. C. M. Kindersley and O. P. Dakeyne taking the places of Messrs. D. Kindersley and E. N. T. Cummins who are absent on leave. The Committee now comprise Mr. C. Burn Murdoch (Chairman) and Messrs. P. F. Wise, E. M. Schwabe, G. D. F. Sinclair, R. C. M. Kindersley and O. P. Dakeyne.

Budget 1914—1915. The Estimates for the current year were discussed. Mr. P. F. Wise proposed that the rate of subscription for the current year be the same as last year, namely \$15/-. This was seconded by Mr. H. L. Hixon and carried.

Election of Delegates to the P. A. M. The Chairman, Mr. P. F. Wise and Mr. E. M. Schwabe were elected as delegates.

Telephones. Mr. R. C. M. Kindersley proposed and Mr. K. G. Furley seconded " That the Kajang D. P. A. write to Government on the subject of telephones, complaining of the very bad state of the telephones for some time past and mentioning that up to the present there has been no improvement. That in view of the fact that subscriptions are now being raised, when the old agreements expire, we might reasonably expect a more efficient service."

Labour Rates. Mr. R. C. M. Kindersley mentioned that he understood that the Chinese Rates in Malacca had been reduced to 50 cts.

He therefore proposed and Mr. P. F. Wise seconded that the Hon. Secretary be instructed to write to the Negri Sembilan P. A. to enquire about the present rates ruling for Chinese, Javanese and Tamil Coolies.

Liquor Question. The Chairman spoke on the liquor question, especially in regard to the adulteration of toddy and beer supplied to Tamils.

He referred to the minutes of the Annual General Meeting of the Kuala Lumpur D. P. A., in which the position of affairs was stated, and said that we could not do anything more in the meantime as from those minutes it would appear that Government had the matter in hand.

The Meeting expressed itself in sympathy with other Associations on this question.

After a hearty vote of thanks had been passed to the Chairman for his services during the past year the meeting terminated.

DEPARTMENT NOTES.

Mr. C. B. Holman-Hunt, Assistant Entomologist, Department of Agriculture, F. M. S., arrived at Kuala Lumpur on return from leave and assumed his duties on 8th May, 1914 (Vide A. B. Vol. 1 No. 12 p. 450).

Mr. P. B. Richards, Assistant Agricultural Inspector, Negri Sembilan, has been appointed as 2nd Assistant Entomologist, Department of Agriculture, F. M. S., Kuala Lumpur.

FEDERATED MALAY STATES.

Comparative tatement of Cultivated Rubber Exported, with Value and Duty Collected Thereon, during the Years 1914 and 1913.

Destination.	Exported during March, 1914.	Previously.	Total export during the year.	Export during similar period of previous year.	Increase.	Decrease.	Value of rubber exported, 1914.	Duty collected, 1914, to date.
	Tons.	Tons.	Tons.	Tons.	Tons	Tons.	$	$ c.
Straits Settlements ..	1,296 67	2,561.33	3,858.00	2,318.94	1,539.06	...	6,667,874	166,090.53
United Kingdom ...	881.16	1,979 17	2,860.33	2,768.17	92.16	...	5,017,748	125,443.72
Continent of Europe ...	116.04	241.06	357.10	362.82	...	5 72	637,146	15,928.65
Ceylon	74.29	124.55	198.84	175.53	23.31	...	131,595	3,289.87
Other Countries ..	49.53	...	49.53	...	49.53	...	307,535	7,688.24
Total ..	2,417.69	4,906.11	7,323.80	5,625.46	1,704.06	5.72	12,761,898	318,441.01

KUALA LUMPUR,
6th April, 1914.

H. W. FIRMSTONE,
Acting Commissioner, Trade and Customs F.M.S.,

Abstract of Meteorological Readings in the various Districts of Malaya for the Month of March, 1914.

DISTRICT.	Mean Barometrical Pressure at 32° Fah.	Maximum in Sun.	TEMPERATURE.				HYGROMETER.				Prevailing Direction of Winds.	Total Rainfall.	Greatest Rainfall during 24 hours.
			Mean Dry Bulb.	Maximum.	Minimum.	Range.	Mean Wet Bulb.	Vapour Tension.	Dew Point.	Humidity.			
Kelantan, Kota Bahru	...	157.	83.1	91.0	71.5	19.4	77.2	.818	73.2	.72%	...	1.35	1.13
Malacca, Durian Daun Hos.	29.868	157.7	83.4	90.6	71.9	18.7	79.1	.935	...	.84	N.	3.67	1.28
N. Sembilan, Dist. Hospital Seremban	...	151.7	80.4	91.0	70.8	20.2	75.3	.791	72.0	.76	N.W.	6.08	1.67
,, Dist. Hos. K. Pilah	...	156.9	79.2	...	...	...	76.2	.834	73.8	.82	...	4.81	1 40
,, ,, Tampin	...	151.0	82.9	...	...	...	76.0	.775	71.5	.69	...	6.48	1.85
,, ,, P. Dickson	...	166.9	83.3	89.5	75.1	14.4	77.7	.847	74.1	.74	...	5.45	1.69
Pahang, ,, K. Lipis	...	...	82.1	91.0	71.0	20.	75.4	...	...	...	...	3.99	0.91
Penang, ,, Penang	29.815	150.	85.1	92.5	74.1	18.4	77.8	.861	74.3	.71	...	3.24	1.25
Perak, ,, Taiping	...	108.	82.10	95.	70.	25.	77.68	.889	...	.83	...	9.05	1.62
,, ,, Ipoh	...	...	82.95	94.	71.	23.	76.98	.848	...	.77	...	6.56	2,40
,, ,, T. Anson	...	...	82.37	93.	70.	23.	78.35	.915	...	.83	...	6.18	1.50
,, ,, P. Buntar	...	...	83.48	93.	71.	22.	78.99	.929	...	.83	...	1.67	.62
,, The Cottage	...	...	...	...	...	...	...	...	...	...	...	5.45	.75
Selangor, General Hospital Kuala Lumpur	...	121.2	80.2	91.	71.2	19.8	77.4	.897	75.6	.85	...	5.31	.86
,, Dist. Hos. Klang	...	...	81.8	88.5	73.7	14.8	76.7	...	...	...	...	7.55	1.75
,, ,, K. Selangor	...	...	...	90.1	74.	16.1	...	...	...	...	...	4.57	1.80
,, ,, Rawang	...	...	...	91.9	71.7	20.2	...	...	...	...	...	8.77	1.81
Singapore, Kandang Kerbau Observatory	29.915	164.	82.7	92.8	71.	21.8	77.6	.875	...	.79	...	9.33	1.70